# Sales Suppression Software "Zappers"

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Thursday, September 26, 2013

<1:00 – 2:00> <Room 620>

# Theme: Market-place

This is a Mid-size business issue

(1) Skimming has been an individual fraud issue, not a market-place issue

(2) Phantom-ware applications show skimming entering the market-place:

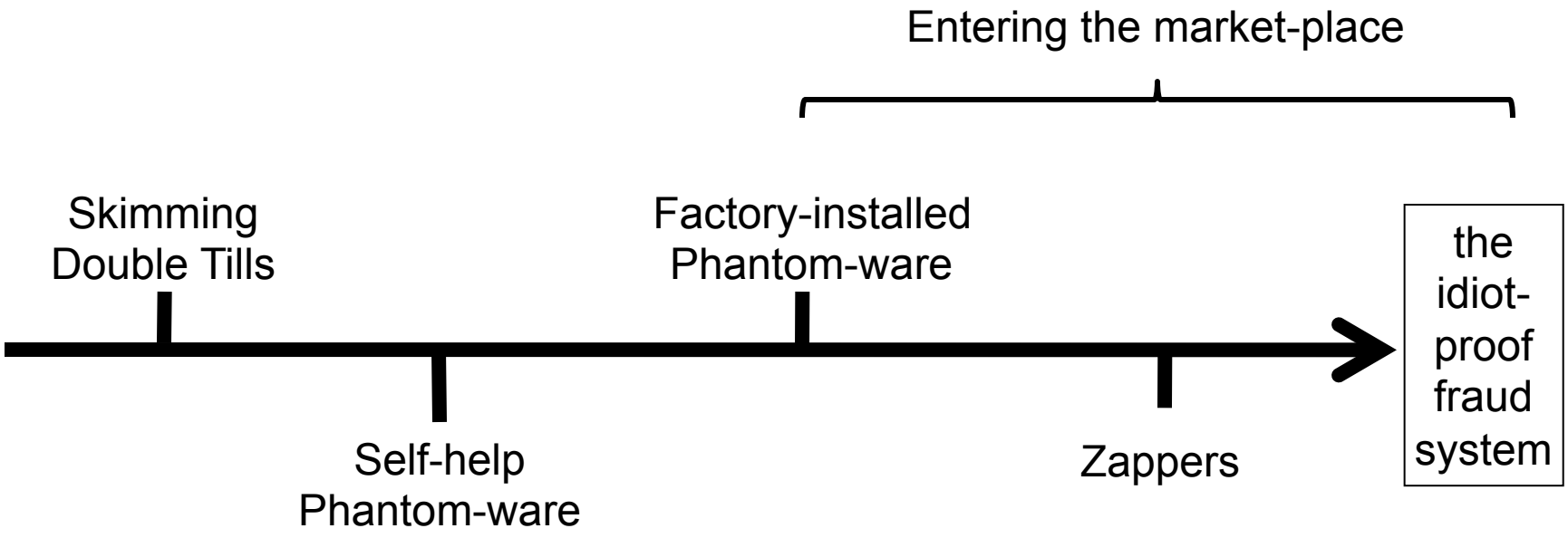
- Self-help phantom-ware
- Factory-installed phantom-ware

(3) Zappers developed next

- Installers, rogue developers, smaller developers

(4) Internet based programs

# Development Time Line




**Where are we going?**

# New Practice Area – Tax Technology

[I began writing on Zappers … February 21, 2008]

- Traditional tax audits (federal and state)
  - CIT; PIT; SUT; Tax & employment withholdings
- Search & seizure of business records – notably technology-based records (See NY regulations)
- Employee embezzlement
- New security systems
  - Mandatory (not in US yet; often found outside US)
  - Voluntary (good business practices)

# New Tax Technology Course

- Spring Term 2014
- 1 credit
- Online
- Tax Technology course outline:
  - Round-table (Tax Technology partners from Big 4)
  - Direct Taxes (corporate and individual)
  - Indirect Taxes (VAT + SUT)
  - Transfer Pricing (engines used for comparable searches)
  - Brazil's technology revolution (SPED)
  - IRS (how they audit with technology)

# TEXAS

[Justin Driscoll]

- **Possession of Automated Sales Suppression Devices and Phantom-Ware is Illegal**

- Senate Bill 529, effective Sept. 1, 2013, makes it a state jail felony to knowingly sell, purchase, install, transfer or possess any automated sales suppression device or phantom-ware, including any device that contains a sales suppression device or a link to sales suppression software. Automated sales suppression devices and phantom-ware (sometimes known as "zappers") are devices or software used to commit tax fraud by falsifying sales data on electronic cash registers at the point of sale. *Business & Commerce Code Sections 326.001 and 326.002, Code of Criminal Procedure Article 59.01*

# State Legislative Activity 9/25/13

| State | Status | | State | Status |
|---|---|---|---|---|
| Arkansas | AR SB 718 | | Michigan | Law |
| California | Law | | North Carolina | NC SB 465 |
| Connecticut | Law | | North Dakota | Law |
| Florida | FL SPB 7128 | | Oklahoma | Law |
| Georgia | Law | | Tennessee | Law |
| Hawaii | HI SB 1189 | | Texas | Law |
| Illinois | Law | | Utah | Law |
| Indiana | Law | | Vermont | Law |
| Kentucky | KY HB 185 | | Washington | Law |
| Louisiana | Law | | West Virginia | Law |
| Maine | Law | | Wyoming | Law |
| Massachusetts | MA SB 1389 | | | 17 + 6 |

# Quebec

- Problem:
  - 500 new cases each year
  - 10,000 delinquent accounts
  - $425 million per year – tax loss in restaurant sales (only)
- Solution:
  - Sales Recording Module (SRM)
  - Hand-help optical scanner
  - 46 restaurants/ 7 cities [pilot project] November 2009
  - 2011 full roll out
  - Results (published February 14, 2013):
    - C$160 million (voluntary increase) … by 2018/19 C$2.3 billion
    - C$1.3 billion (fines and assessments)

# Based on Quebec

| State | GDP (billions) | % of Quebec | Est. Tax Losses |
|---|---|---|---|
| Quebec | $166.9 | | $425 million |
| California [1] | $1,118.7 | 670% | $2.847 billion |
| New York [2] | $706.6 | 423% | $1.798 billion |
| Texas [3] | $641.3 | 384% | $1.632 billion |
| Illinois [4] | $422.2 | 253% | $1.075 billion |
| Florida [5] | $413.9 | 248% | $1.054 billion |
| Massachusetts | $239.4 | 143% | $608 million |
| | | | |
| **Total** | | | **$21.095 billion** |

# Three US Zapper Cases

- Stew Leonard's Dairy – 1994
  - Custom made zapper (former NCR IT expert)
  - Zapper is kept in a hollowed out book in office
  - $17m (IRS income tax audit) – Customs uncovered
- LaShish Restaurants – 2007
  - Zapper kept at owner's residence connected to ECRs at 13 restaurants
  - Skim $20m (4 years) sent to Hezbollah (Lebanon)
  - CIA mole (sister-in-law); wife in prison
  - Husband is fugitive from US (in Lebanon)
- Theodore Kramer – 2011
  - Installer (Journal Sales Remover program)
  - 2 strip clubs – over $500,000 gross sales
  - 5 years in prison (plea bargain – will talk)

# 7 Ohio I-HOPs

US District Court, Northern District of Ohio, Western Division

3:12-cr-262-DAK (filed 5-22-2012)

- 18 people indicted - $3 million [Tarek Elkafrawi]
- FBI; ICE-HSI; Joint Terrorism Task Force [Egypt; Jordan; Lebanon]
- Change in POS (2010) – Internet access
- Two franchise fees [Equipment/land; royalty/ advertising = 8% net sales].
- Manipulation of
  - Sales, payroll, false SSN, multiple SSN, 200+ illegal workers, underpaid for overtime, “New” system manipulation of hours worked, weekly central administration credit $2,300
  - Remote access to Ohio “new system” with “specific on-line software viewer” software from home computers – reset clock; manipulate cash transactions because tickets remained open; “new system” taken “off-line”

# “Richard, I Found One …”

“I was able to see a zapper in person, interesting. I can not believe how easy it works.”

- Icon [double click] + password
- Eliminate manually or automatic
- Maybe … 10 min.
- All ECRs must be off to re-index
- Installer identified (installed in 2008)
- Owner showed how it works
- Proof of deficiency difficult … estimates … will pay in full
- Will use Zapper for training …

# “Richard, is a zapper in here …?”

“There is a chain of five restaurants in the same town, two high end, three middle to higher end. Labor ratio is 26 percent, should be around 38 to 40, mostly credit cards, seems high though the average is about 88 percent on preliminary analysis, same POS. I suspect that maybe credit cards could be diverted, need to dive deep to see what is there, the labor is out of line based on analysis of what we usually see.”

# “Richard, what do you think … zapper ?”

“Another one, we have the electronic data and the order numbers are missing throughout the audit at a rate of 11 percent per quarter.  Guest check numbers are missing at a smaller rate, the order numbers are deep programmed where there are reasons for missing guest receipt numbers to be missed per software IT folks, they say order numbers should always show, …. zapper?”

# Phantom-ware

There are two types:

Self-help

Factory Installed

# Type 1 – Self-help Phantom-ware

- Modern ECRs can be re-programmed to eliminate the audit trail (critical records)
  - Z Reports (daily/periodic) – end of day report that records sales, taxes, media totals, discounts, voids, etc.
  - X Reports – same as Z Reports except they do not "reset" the system after being taken.
  - Electronic Journal – records all transactions (blow-by-blow) entered in the machine
- Programming is "secret" (not in user's manual) – limit access [bad employee issues]

# Type 2 – Factory installed Phantom-ware

- Does not require re-programming
- Secret (hidden) functionality built in to ECR
  - Not discussed in user's manual
  - Not visible in menu structure
  - Commonly revealed only in oral communications with
    - » Installer
    - » Sales representative
- The idea is to remove the need to re-program

# Zappers

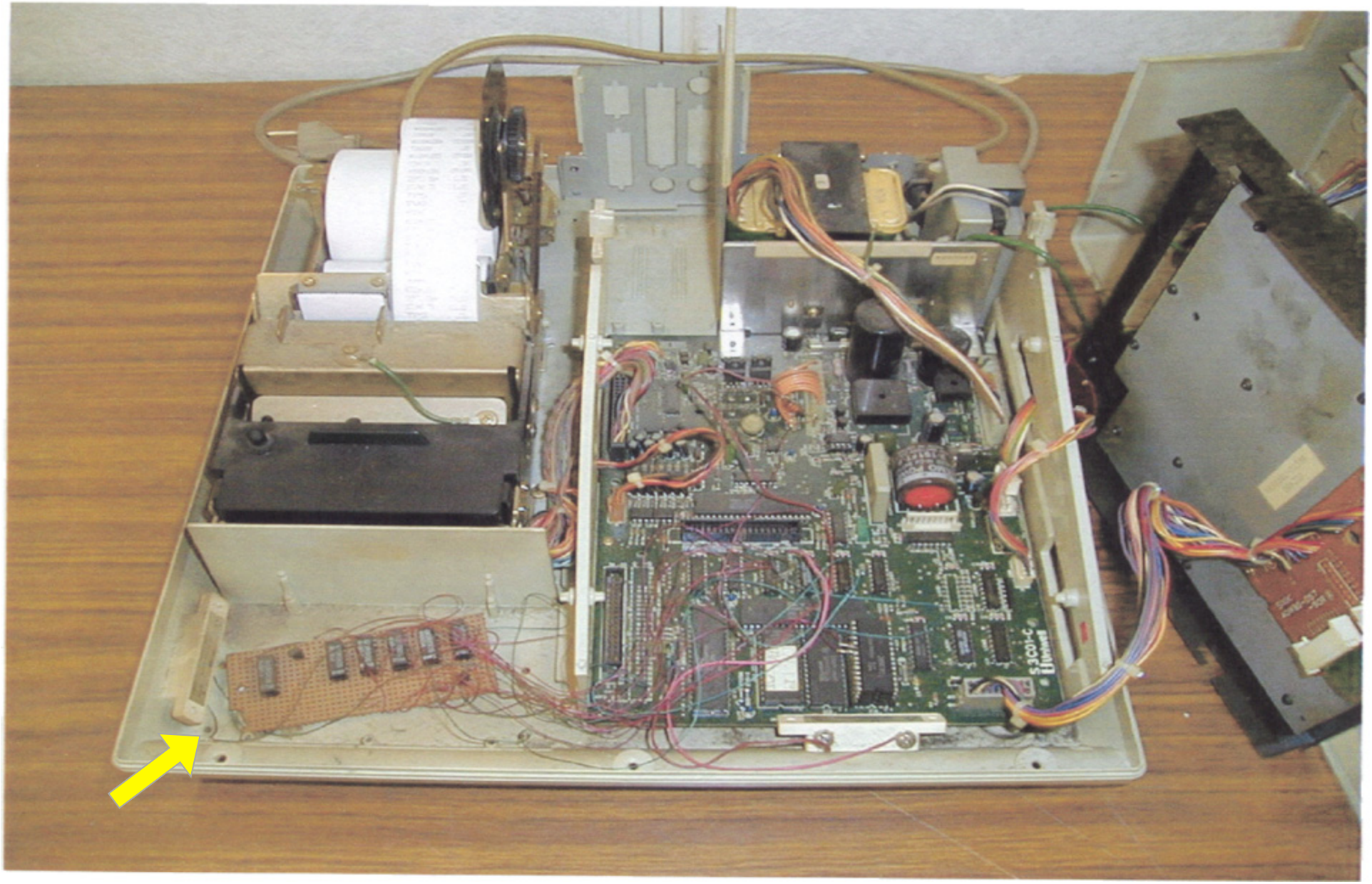
There are three generations

Zappers Past; Zappers Present; Zappers Yet to Come

# Zapper from the Past

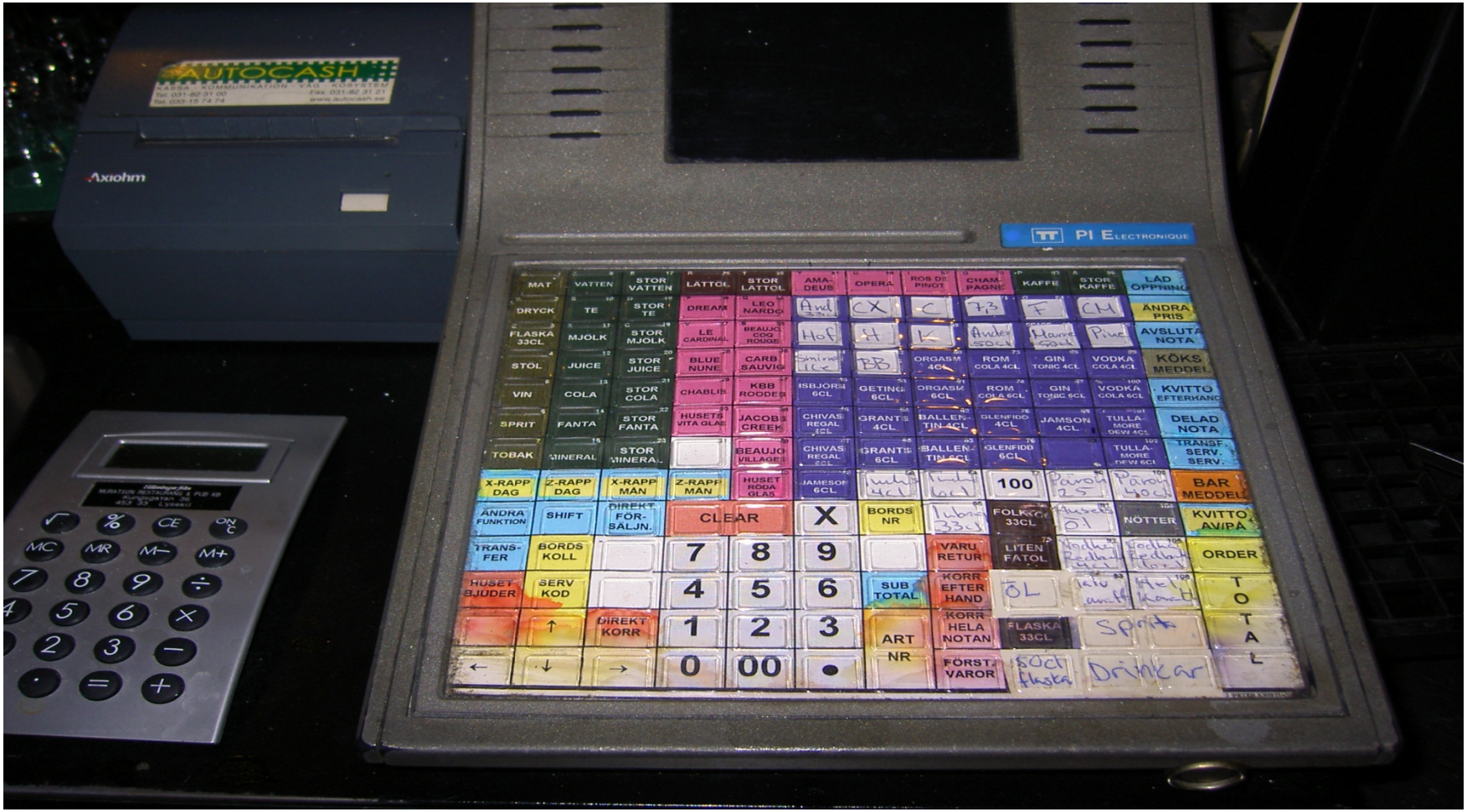
- This is an old Quebec Zapper.  It has been “hard wired” into the ECR.  The picture shows the top of the ECR removed, and the yellow arrow points to the device.
- When Zappers are added to ECRs this way it is very easy to find them.
- People only do it this way in jurisdictions that are not looking for them.

C00003.jpg (1280x960x16M jpeg)



# Zappers Present

Note: this Swedish zapper requires a lot of manual intervention.




# A specific brand of cash register (blood)

Manufactured in Paris (since 1983)

Popular in Italy, Belgium, Portugal, Spain, Germany, Denmark, Australia, USA and North Africa.

Uses “Specific kind of” back-office program

Cash register is connected to a PC (in the back office) like the one on the following slide.

# Back-Office PC

Notice the “dongle” (grey memory stick) protecting proprietary program

Notice the silver memory stick – this is the “zapper”

Restodata is programmed to automatically download all information about all transactions from all cash registers every morning at (for example) 5:00 am

Details of a “zapping” from Sweden

See supplemental slides

# Sweden – Retail Innovation – Now !

- 75% of the market dominated by one transactional security company – Retail Innovation … program is called CleanCash … may visit BU in November
- VAT rate = 25%
- €1 billion lost
- Certified Cash Registers required, and yearly recovery is €355 million
- What is the new business model?
- Where are the new jobs for lawyers (with tax skills) in mid-sized business services?

# So, What's Happening … Now!

- Penalize the Installer law
- Stings with false businesses …
- Privacy concerns with comprehensive technology solutions, some opt for:
  - severe (limited) enforcement (Oklahoma
  - broad (conditional) enforcement (Missou
  - "bad apple" enforcement (New York)
- Credit cards, the internet, the cloud….

# What's Coming ?

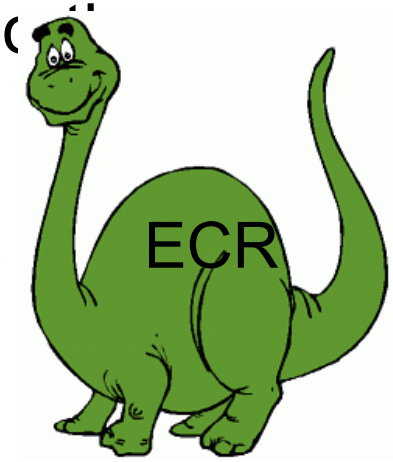
- Credit card skimming
- Virtual frauds
- Virtual security

# The Future

- Current technology solutions require a receipt

http://www.skatteverket.se/privat/kvitto/webbfilmmedengelsktext.4.71004e4c133e23bf6db80003181.html

- Internet-based Zappers [Zapper-as-a-Service]
  - Six cases in Portugal. [UK; Norway; N… Carolina]
- Zappers have migrated to the cloud
- Tablets/phones/hand-held devices
  - The ECR is a dinosaur
  - Big retail stores, hardware stores,



# Further Reading

- **An American Look at Zappers: A Paper for the Physikalisch-Technische Bundesanstalt, Revisionssicheres System Zur Aufzeichnung Von Kassenvorgängen Und Messinformationenthe http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2026140**
- **Zappers & Phantom-Ware: A Global Demand for Tax Fraud Technology http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1139826**
- **Zappers: Tax Fraud, Technology and Terrorist Funding http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095266**

# Thanks

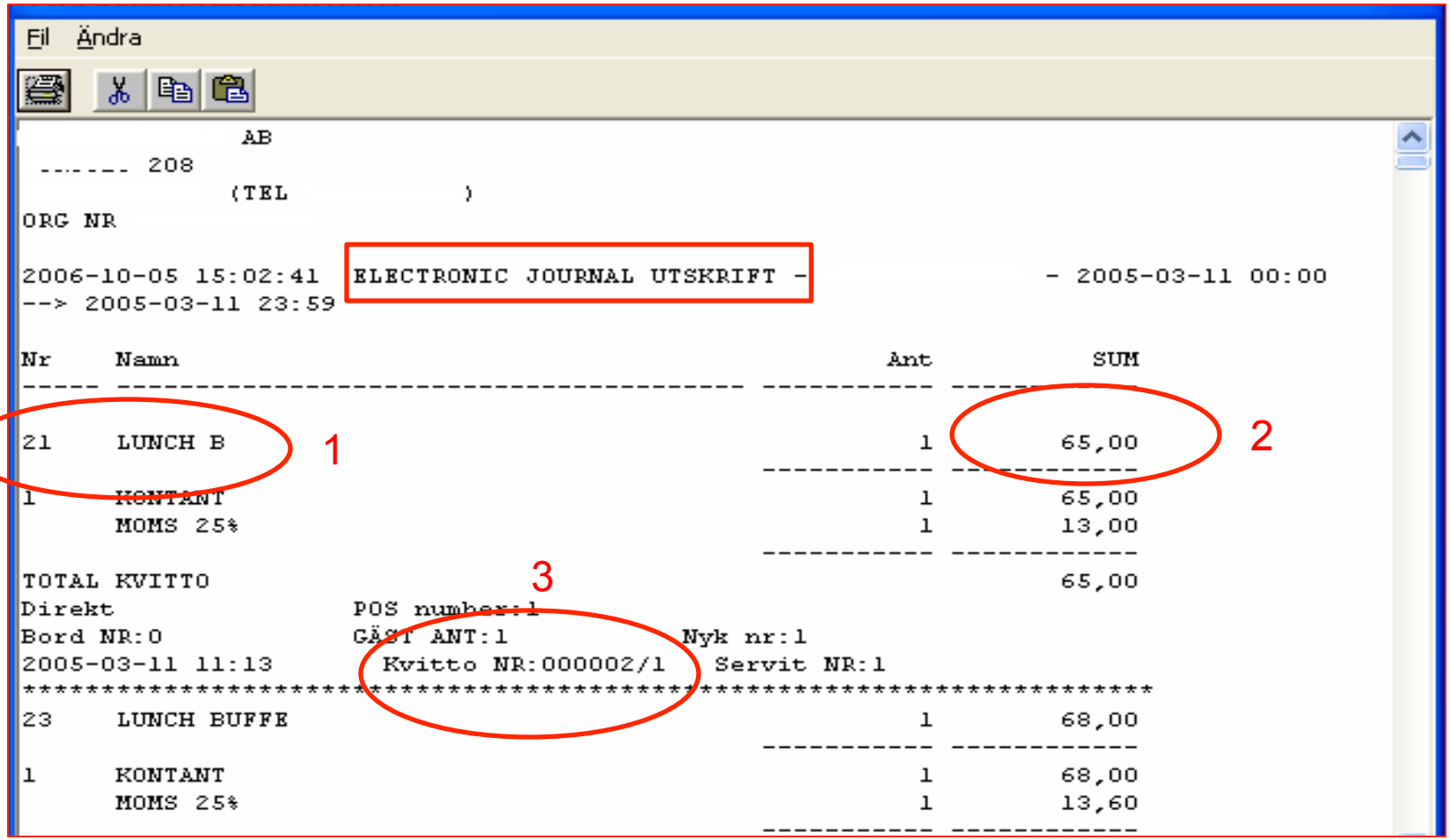
- Richard T. Ainsworth, Director

- Boston University, Graduate Tax Program
  - vatprof@bu.edu

# Supplemental Slides

Details from Sweden based on the System presented above

So, before manipulation here is the
electronic journal
the sales report
the sales receipt




## Electronic Journal (before manipulation)

1. Item number 21 is a Lunch B
2. It cost 65,00 kroner
3. The receipt is number 2/1

AB

ORG NR.

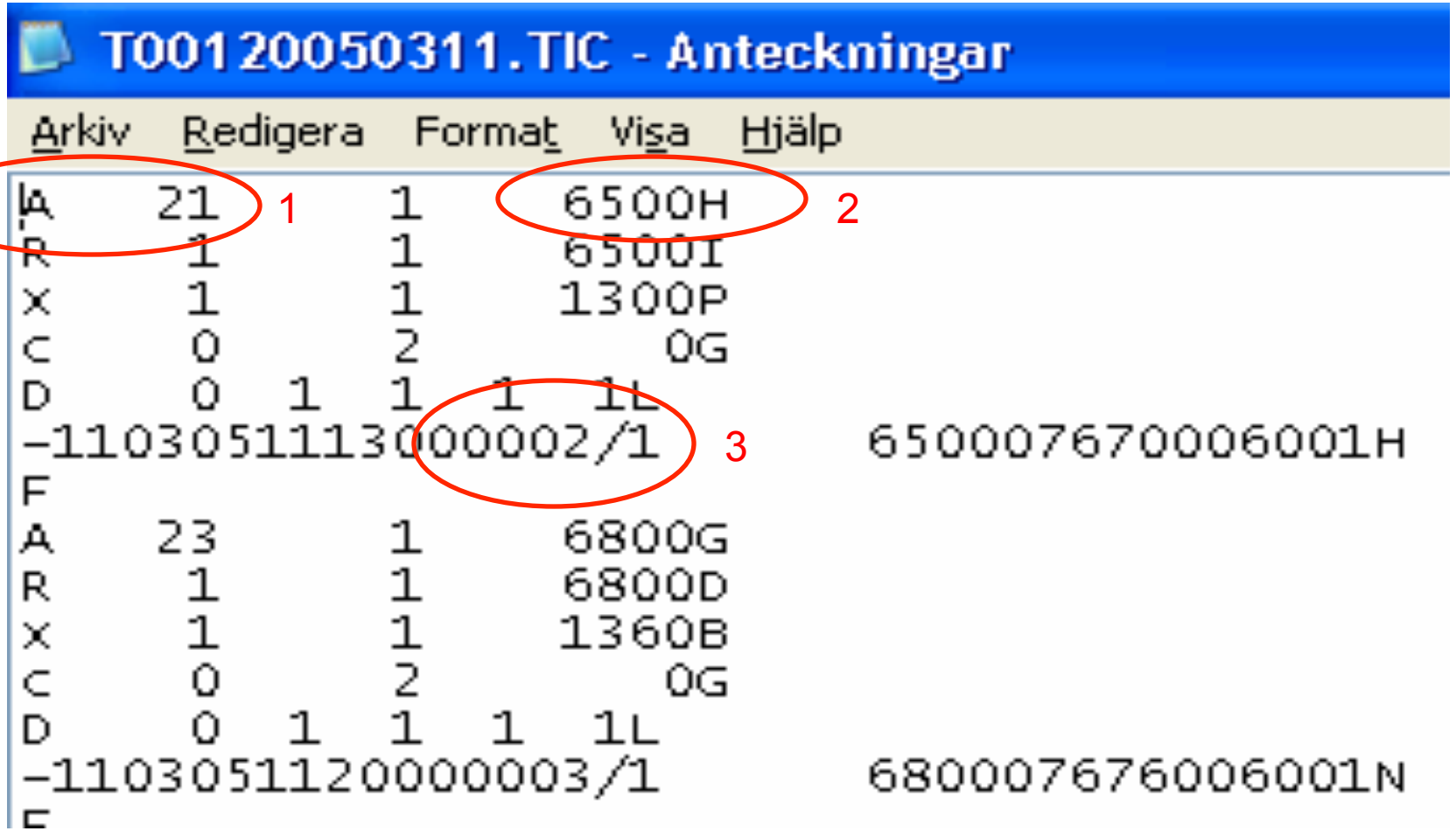
## *Förs.per familj*

**2005-03-11 till 2005-03-11**

| Namn | SUM |
|---|---|
| Unknown family | 693,00 kr |
| AVHÄMTNING | 1 701,01 kr |
| DRINK | 340,00 kr |
| DRYCK | 1 026,00 kr |
| MAT | 19 981,00 kr |
| SPRIT | 669,00 kr |
| STARKÖL | 13 492,00 kr |
| VIN | 3 144,00 kr |
| TOTAL | 41 046,01 kr |
| Out of SALES : | 0,00 kr |
| Rabatt : | -209,70 kr |

# Sales Report (before manipulation)

We need this for comparison later



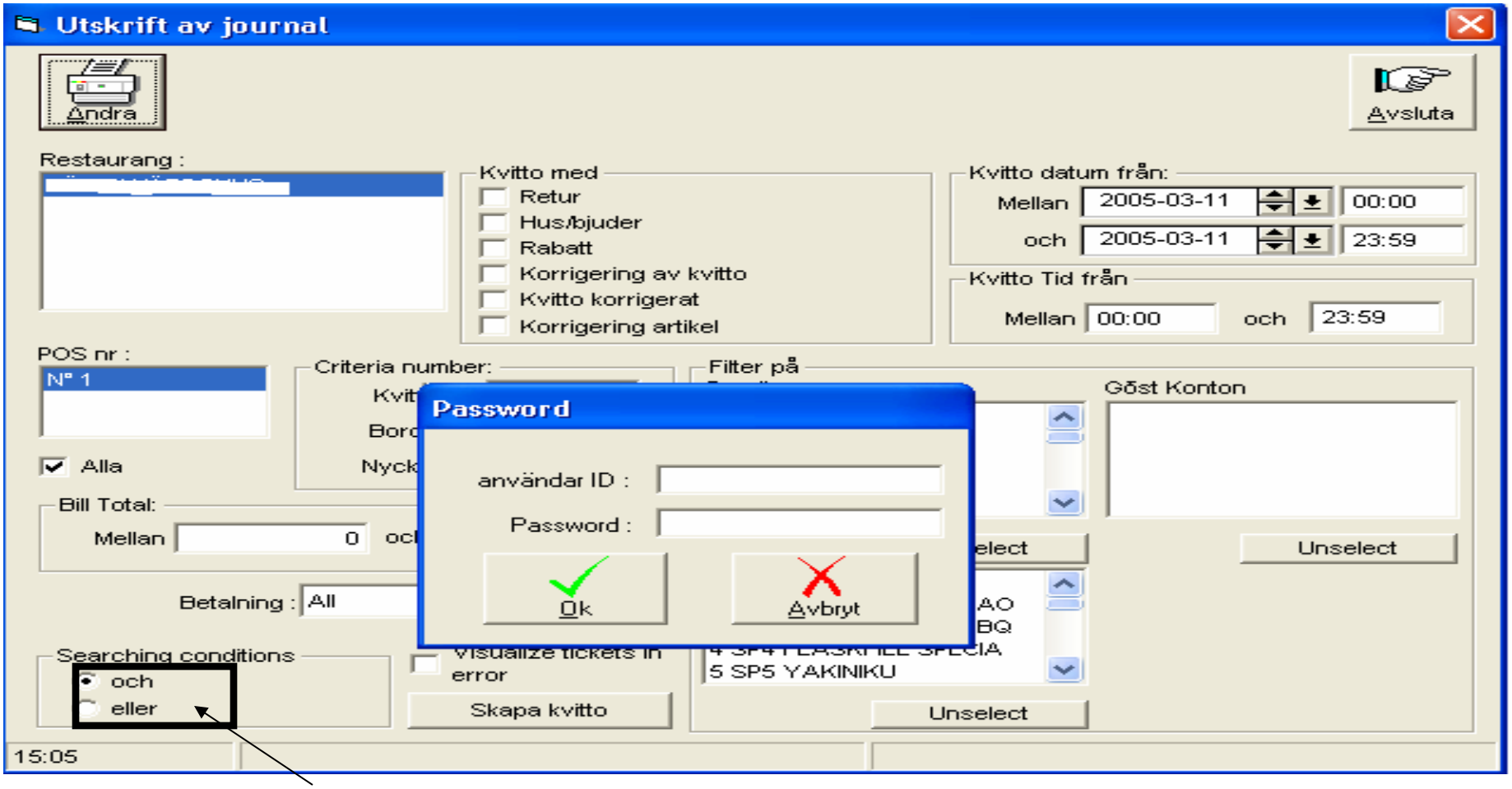

## Sales receipt (before manipulation)

These are in the ".TIC" files (for "tickets"). Notice:

1. Item number 21
2. Sales price of 65,00 kroner
3. Ticket number (receipt number) 2/1

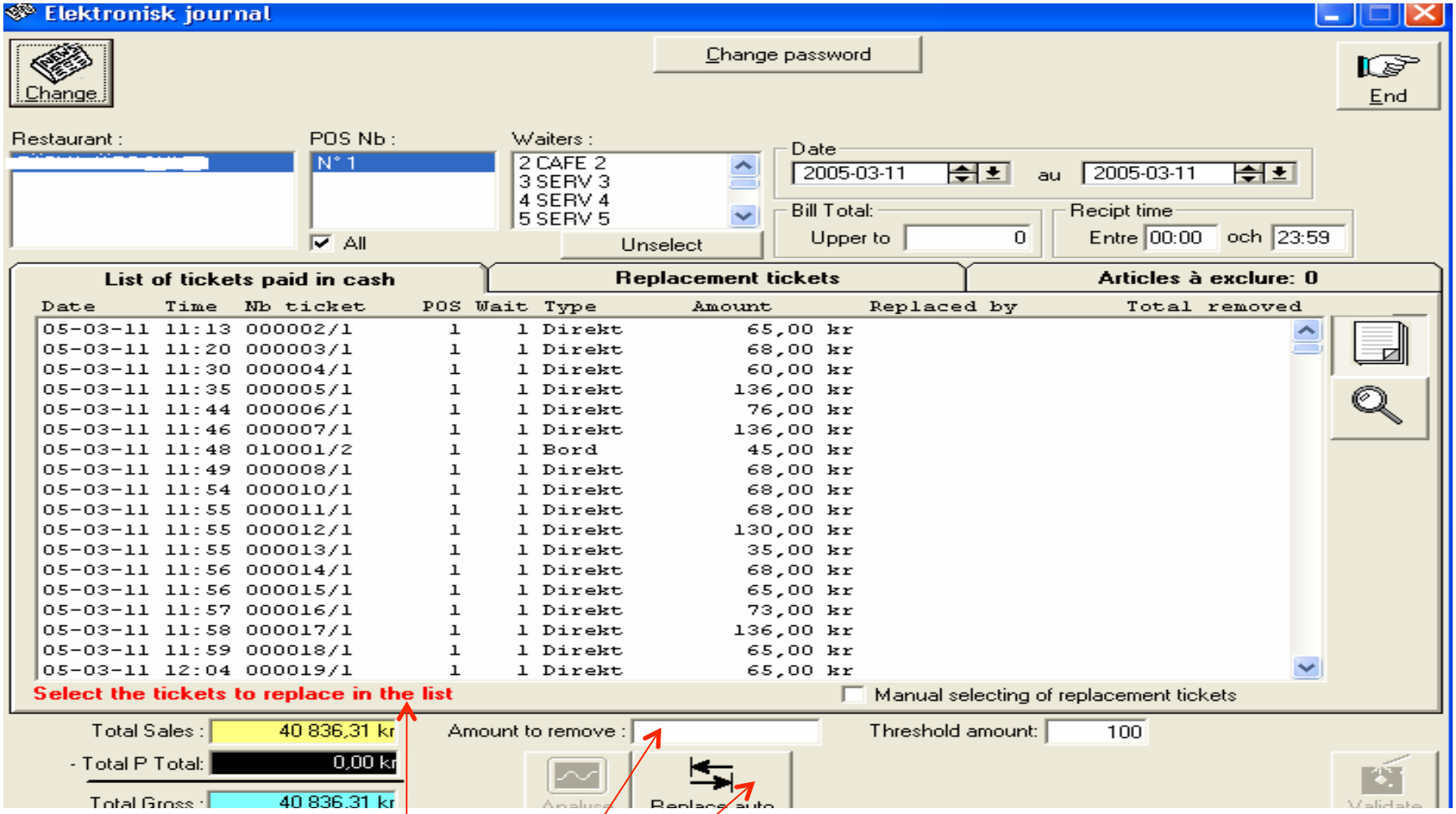
# To manipulate the data you insert the zapper (silver memory stick)

There is a new version of the CMDCAR.DLL program on the zapper




## Double-Click on the secret module

It is not all that apparent what you need to do here, but by double clicking in the box in the lower left, entering an ID and a password, you will get to the next screen – the Electronic Journal (which can be adjusted).


Elektronisk journal
Change
Change password
End
Restaurant :
POS Nb :
N° 1
All
Waiters :
2 CAFE 2
3 SERV 3
4 SERV 4
5 SERV 5
Unselect
Date
2005-03-11
au
2005-03-11
Bill Total:
Upper to
0
Recipt time
Entre 00:00 och 23:59
List of tickets paid in cash
Replacement tickets
Articles à exclure: 0
Date Time Nb ticket POS Wait Type Amount Replaced by Total removed
05-03-11 11:13 000002/1 1 1 Direkt 65,00 kr
05-03-11 11:20 000003/1 1 1 Direkt 68,00 kr
05-03-11 11:30 000004/1 1 1 Direkt 60,00 kr
05-03-11 11:35 000005/1 1 1 Direkt 136,00 kr
05-03-11 11:44 000006/1 1 1 Direkt 76,00 kr
05-03-11 11:46 000007/1 1 1 Direkt 136,00 kr
05-03-11 11:48 010001/2 1 1 Bord 45,00 kr
05-03-11 11:49 000008/1 1 1 Direkt 68,00 kr
05-03-11 11:54 000010/1 1 1 Direkt 68,00 kr
05-03-11 11:55 000011/1 1 1 Direkt 68,00 kr
05-03-11 11:55 000012/1 1 1 Direkt 130,00 kr
05-03-11 11:55 000013/1 1 1 Direkt 35,00 kr
05-03-11 11:56 000014/1 1 1 Direkt 68,00 kr
05-03-11 11:56 000015/1 1 1 Direkt 65,00 kr
05-03-11 11:57 000016/1 1 1 Direkt 73,00 kr
05-03-11 11:58 000017/1 1 1 Direkt 136,00 kr
05-03-11 11:59 000018/1 1 1 Direkt 65,00 kr
05-03-11 12:04 000019/1 1 1 Direkt 65,00 kr
Select the tickets to replace in the list
Manual selecting of replacement tickets
Total Sales : 40 836,31 kr
- Total P Total: 0,00 kr
Total Gross : 40 836,31 kr
Amount to remove :
Threshold amount: 100

## “Manipulate-able” Electronic Journal

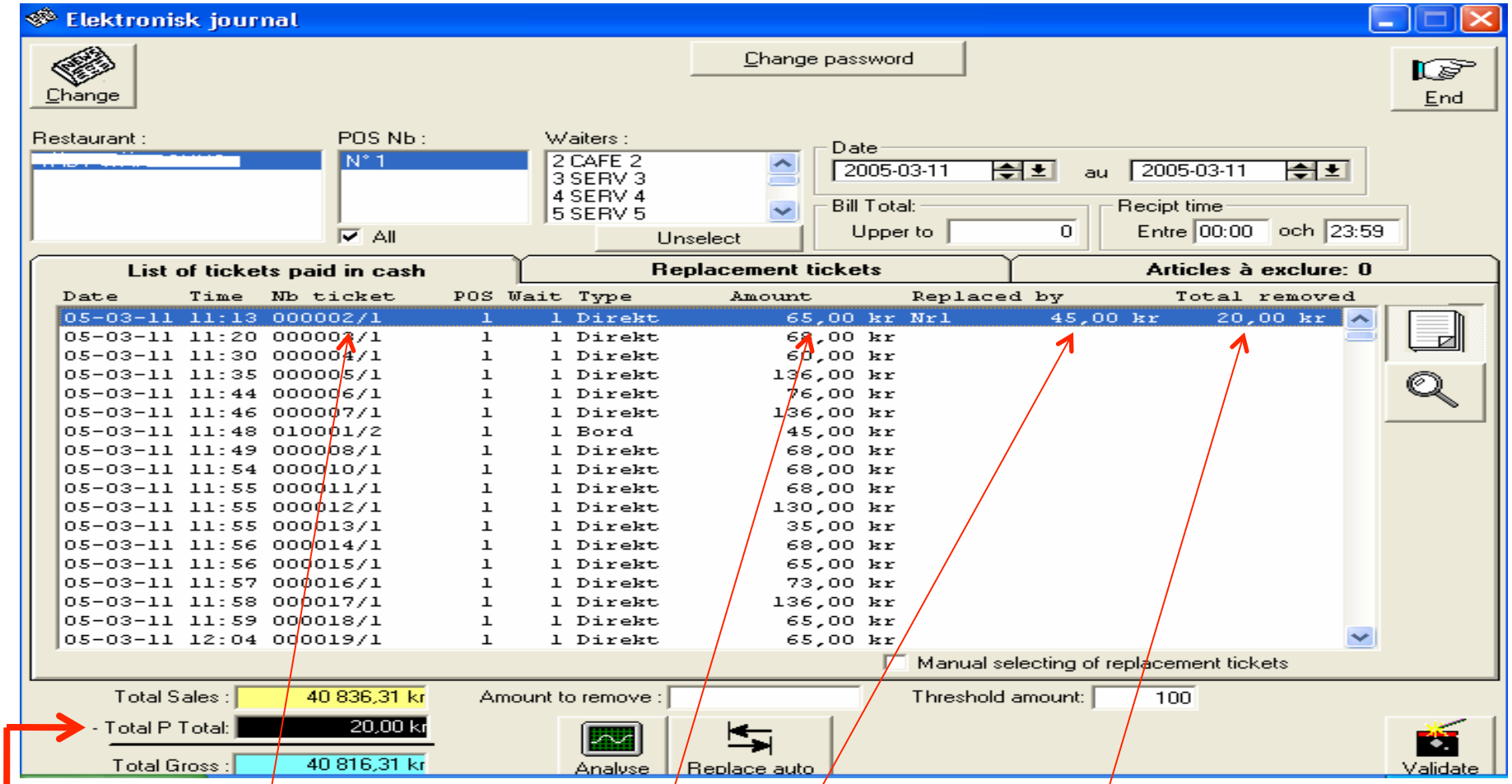
Notice that we can either

(1) select a ticket to adjust, or

(2) auto-replace

So, assume we take the selection of a ticket approach … (1),

When we select the first item (ticket number 2/1) we then get …

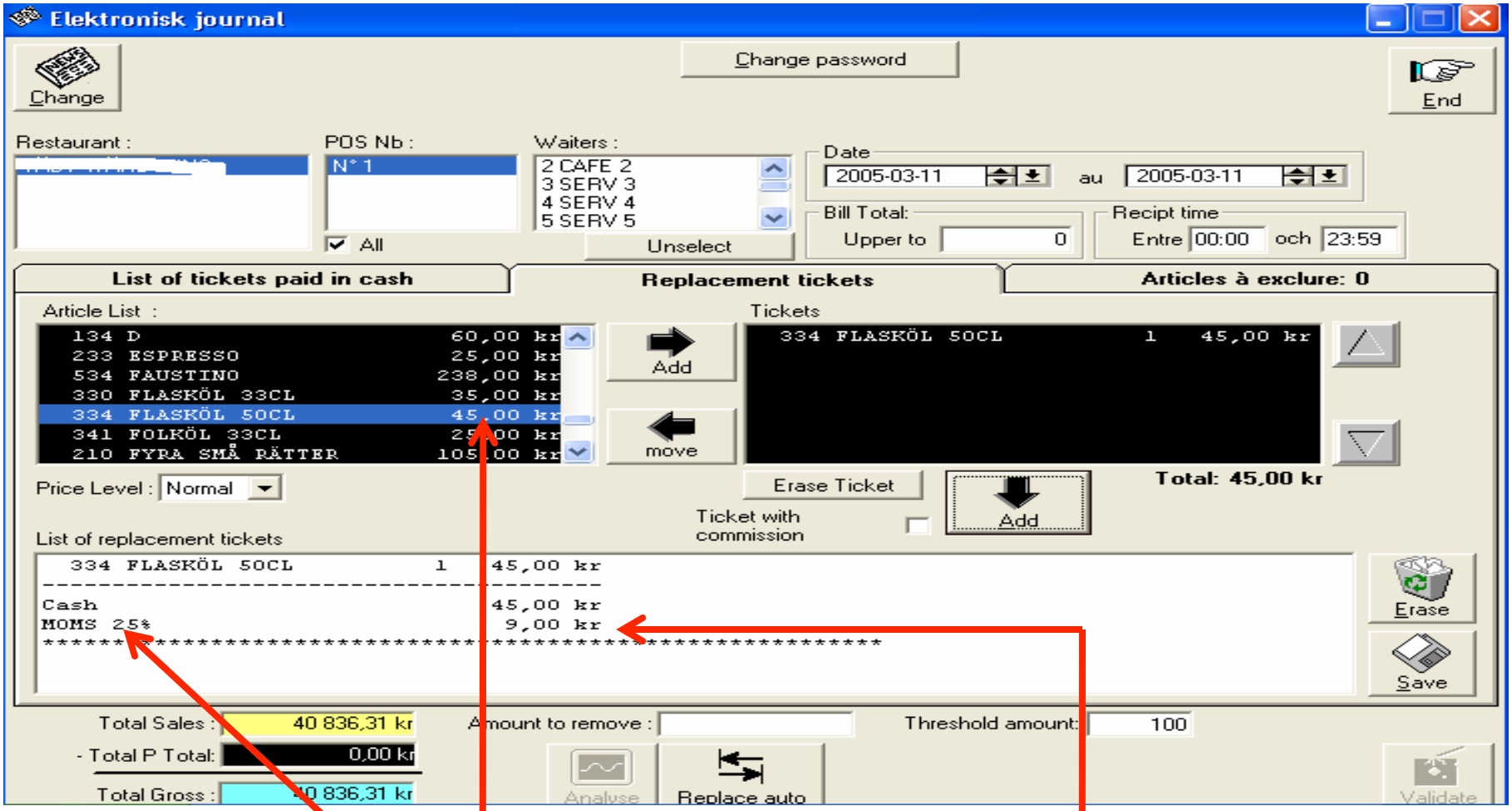

Elektronisk journal
Change
Change password
End
Restaurant :
POS Nb :
N° 1
All
Waiters :
2 CAFE 2
3 SERV 3
4 SERV 4
5 SERV 5
Unselect
Date
2005-03-11
au
2005-03-11
Bill Total:
Upper to
0
Recipt time
Entre 00:00 och 23:59
List of tickets paid in cash
Replacement tickets
Articles à exclure: 0
Date Time Nb ticket POS Wait Type Amount Replaced by Total removed
05-03-11 11:13 000002/1 1 1 Direkt 65,00 kr Nr1 45,00 kr 20,00 kr
05-03-11 11:20 000003/1 1 1 Direkt 68,00 kr
05-03-11 11:30 000004/1 1 1 Direkt 60,00 kr
05-03-11 11:35 000005/1 1 1 Direkt 136,00 kr
05-03-11 11:44 000006/1 1 1 Direkt 76,00 kr
05-03-11 11:46 000007/1 1 1 Direkt 136,00 kr
05-03-11 11:48 010001/2 1 1 Bord 45,00 kr
05-03-11 11:49 000008/1 1 1 Direkt 68,00 kr
05-03-11 11:54 000010/1 1 1 Direkt 68,00 kr
05-03-11 11:55 000011/1 1 1 Direkt 68,00 kr
05-03-11 11:55 000012/1 1 1 Direkt 130,00 kr
05-03-11 11:55 000013/1 1 1 Direkt 35,00 kr
05-03-11 11:56 000014/1 1 1 Direkt 68,00 kr
05-03-11 11:56 000015/1 1 1 Direkt 65,00 kr
05-03-11 11:57 000016/1 1 1 Direkt 73,00 kr
05-03-11 11:58 000017/1 1 1 Direkt 136,00 kr
05-03-11 11:59 000018/1 1 1 Direkt 65,00 kr
05-03-11 12:04 000019/1 1 1 Direkt 65,00 kr
Manual selecting of replacement tickets
Total Sales : 40 836,31 kr
Amount to remove :
Threshold amount: 100
- Total P Total: 20,00 kr
Total Gross : 40 816,31 kr
Analyse
Replace auto
Validate

# Manipulated Electronic Journal (pro-forma)

Here is what we have done so far – is this enough manipulation?

Ticket 2/1 has been changed from 65,00 to 45,00 with a reduction of 20,00 on this ticket

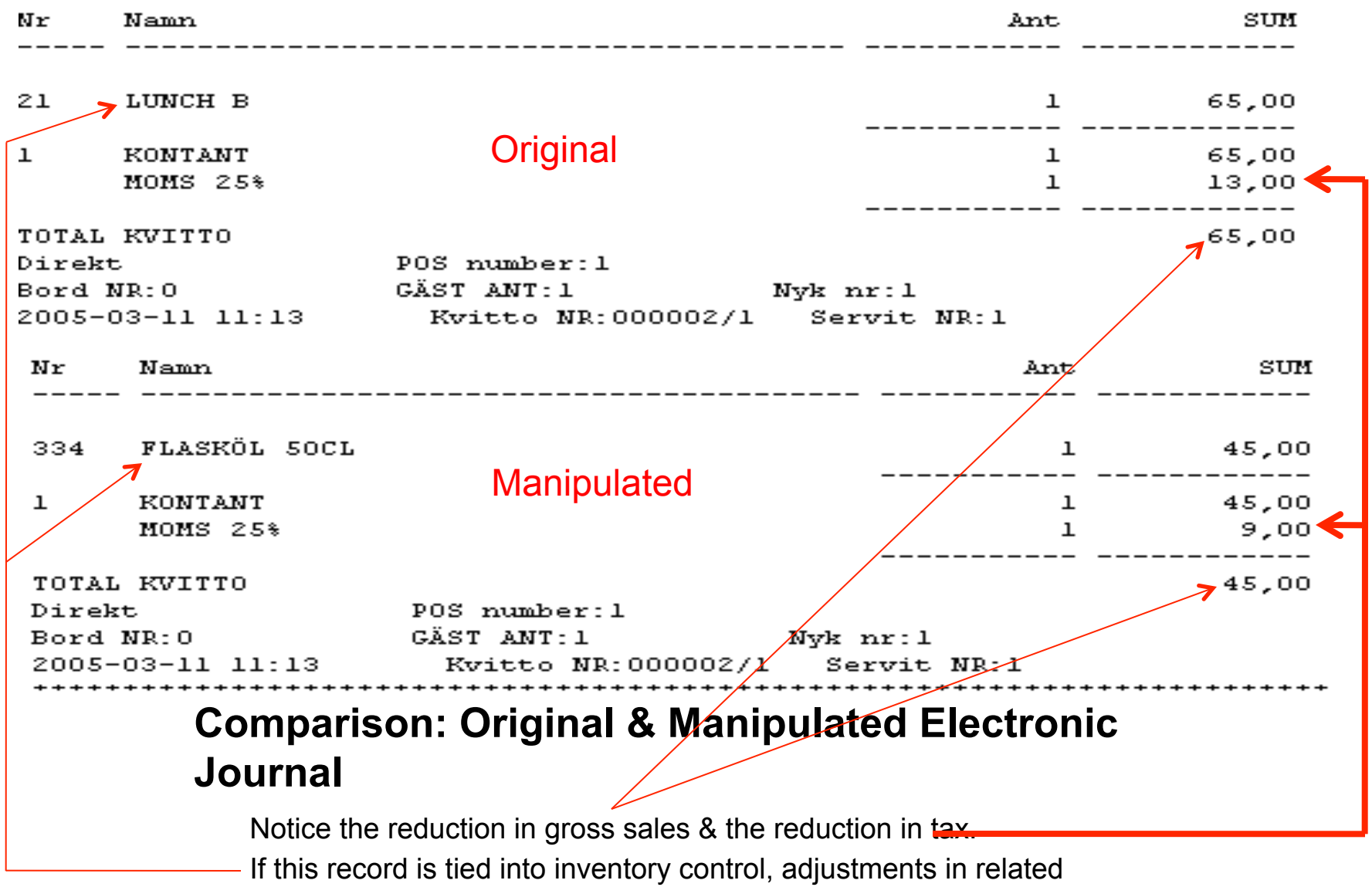
There is a running total kept (in case you want to remove more)




## Replace the Lunch Buffet (65,00) – with a beer (45,00)

Notice the price reduction (we could have gone lower) – Notice the tax reduction

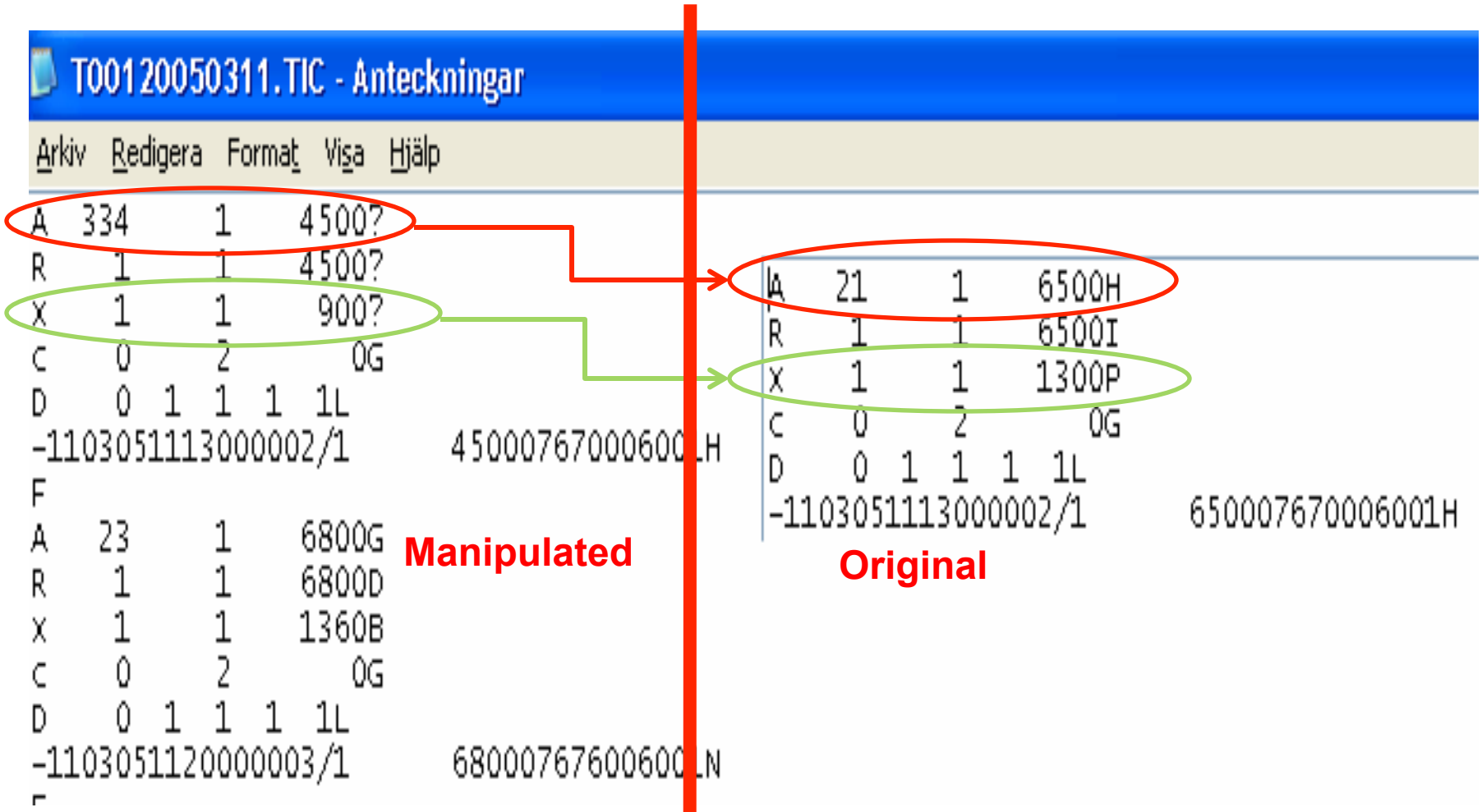
The Swedish VAT is at 25%


Nr Namn Ant SUM
21 LUNCH B 1 65,00
1 KONTANT 1 65,00
MOMS 25% 1 13,00
TOTAL KVITTO 65,00
Direkt POS number:1
Bord NR:0 GÄST ANT:1 Nyk nr:1
2005-03-11 11:13 Kvitto NR:000002/1 Servit NR:1
Original
Nr Namn Ant SUM
334 FLASKÖL 50CL 1 45,00
1 KONTANT 1 45,00
MOMS 25% 1 9,00
TOTAL KVITTO 45,00
Direkt POS number:1
Bord NR:0 GÄST ANT:1 Nyk nr:1
2005-03-11 11:13 Kvitto NR:000002/1 Servit NR:1
Manipulated

# Comparison: Original & Manipulated Electronic Journal

Notice the reduction in gross sales & the reduction in tax.

If this record is tied into inventory control, adjustments in related purchases will be necessary [some zappers will do this for you] because you may have just “sold” more beer than you ordered




## Comparison of the TIC-files – Manipulated & Original

Notice the “?” in the Manipulated version in contrast with the letters “H”, “I” & “P” in the original version. This one of the tell-tale signs of manipulation in this particular program. It may indicate that the system has not been correctly updated since the manipulation procedure.